
Cell Villages and Clinical Trial in a Dish with Pooled iPSC-CMs for Drug Discovery

Grant Award Details

Cell Villages and Clinical Trial in a Dish with Pooled iPSC-CMs for Drug Discovery

Grant Type: Tool Translational Research Projects

Grant Number: TRAN4-14124

Investigator:

Name:	Nikesh Kotecha
Institution:	Greenstone Biosciences
Type:	PI

Award Value: \$1,350,000

Status: Pre-Active

Grant Application Details

Application Title: Cell Villages and Clinical Trial in a Dish with Pooled iPSC-CMs for Drug Discovery

Public Abstract:**Translational Candidate**

Human stem cells in a dish engineered into heart cells to supplement, refine, reduce, and/or ultimately replace human clinical trials.

Area of Impact

Increase genetic diversity of preclinical studies in human samples to derisk clinical trials and save time and costs.

Mechanism of Action

We will have several non-invasive human-derived stem cells collected and engineered into heart cells that replicate the patient's heart function. This collection of human-relevant heart cells can then be used for testing new drugs for preclinical studies prior to experimenting safety and efficacy on humans in clinical trials.

Unmet Medical Need

Drugs often fail clinical trials due to insufficient safety or efficacy, with the former carrying substantial risk to patients. Our tool increases genetic diversity of human cell lines the drug can be tested on to better predict safety and efficacy in humans.

Project Objective

Readiness for transfer to manufacturing.

Major Proposed Activities

- Generate cell villages that models a collection of many diverse human hearts from different ethnic and genetic backgrounds.
- Evaluate the response of cells with the treatment of doxorubicin, a chemotherapy, which has been shown to have variable cardiotoxicity.
- Identify cell-specific and patient-specific response to doxorubicin from the cell village.

Statement of Benefit to California:

Cardiovascular diseases and cancer are the #1 and #2 leading causes of death in the US. This proposal aims to increase ethnic and genetic diversity representative of diverse populations such as California for evaluation of new drugs to supplement preclinical trials and better predict clinical trial outcomes.

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